November 6, 2000

Ms. Anne Dailey
U. S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

Dear Anne:

Re: Spokane/Coeur d'Alene River Basin Draft Ecological Risk Assessment Report – August 31, 2000

The following comments are provided on the content of the draft report Ecological Risk Assessment (EcoRA).

General Comments:

- Please be aware of current proposed rule revisions to the Model Toxics Control Act (MTCA), which include site-specific terrestrial ecological evaluation procedures (proposed WAC 173-340-7493). If promulgated the procedure would likely be applicable. The procedure includes Soil concentration tables for the protection of terrestrial plants and animals (i.e. Table 749-3).

- The study does not adequately acknowledge and address the issue of aggregate affects of metals. While this is a challenging topic, we request that additional introduction and discussion of these potential effects be added to the revision.

- Very little site-specific discussion of ESA- and State-listed species is provided for Unit 5. While this may be in part due to limited availability of information and the broad focus of the EcoRA, the document could address the known distribution of species, for example - bull trout, and provide references for the sources of more site-specific information. Information sources were provided previously in the comments contained in a letter to Daily, dated July 28, 2000.

- An ecological risk analysis of metals in the Spokane River has been prepared by Kadlec (November 2000) for the Washington Department of Ecology. This document is added as an attachment.

Executive Summary Comments:

Comments provided on the body of the report address topics discussed in the Executive Summary. Regardless, a couple of specific points for the Executive Summary are provided below.

Ecological Preliminary PRGs for Chemical Stressors:

The application and discussion concerning surface water background metals concentrations should be revised. See comments for Section 2.0 of the report.

The Gott and Cathrall data were sieved to 80 mesh, as such their 90th percentiles are biased high for this reason also.

Take Home Message:

The sentence discussing 70 million tons of tailings should more specifically document and summarize the estimates and sources of information. See the comment for Section 2.1.2.

Figures ES-2 and -3: The symbol for cities that looks like a drum is distracting and suggestive. Please apply a different symbol. For ES-3, many of the "city" areas shown are relatively small or obscure landmarks. The following Spokane River landmarks are suggested: Spokane Tribal lands, Spokane, Millwood, Greenacres, Liberty Lake, and Post Falls.

Comments Linked to Specific Sections in the Document:

2.0 PROBLEM FORMULATION:

2.1 Site Background:
One important topic of significance is a discussion detailing the relationship of hydrology and metals transport in the Spokane River. The background discussion should address flood (or high flow) frequencies and relate them to dissolved and suspended sediment transport and loading. Low flow water quality and loading conditions specific to the Spokane River also should be discussed in detail and related to the EcoRA.

2.1.2 Site History:
The sentence discussing 70 million tons of tailings should more clearly identify the estimates and sources of information. The Stratus (1999a) excerpt estimates of tailings volumes should be reconciled with the estimates of Bookstrom & Box for the lower Coeur d'Alene (CdA) River and floodplain and that of Horowitz, et.al. (1993) for Lake CdA.

2.3 Ecological Setting:
2.3.1.1.1 Riverine Habitat, page 2-15, 2nd paragraph:
For the discussion please add that the river provides significant recharge to the Spokane Valley-Rathdrum Prairie Aquifer, which is Spokane's sole-source water supply.
2.3.1.2 Lacustrine Habitat, page 2-16, 5th paragraph:
Change "Upper Falls" to "Upriver" dam.

2.5 Background and Evaluation:
2.5.1 Soil and Sediment, page 2-30, last paragraph:
Please note that the Gott and Cathrall results are based on sieved samples, which for unconsolidated materials was the minus 80-mesh size fraction.

2.5.2 Surface Water, page 2-33:
Over extrapolation, interpretation, and generalization of the Maist et.al. (1999) natural surface water background study may exist in this section. First, what is meant by "baseline" in the Maist et.al. study should be presented. Second, the Maist et.al. study sampled very specific drainages in the upper basin. The finer points of their work should be further discussed. Similarly, the discussion may be interpreted to be applicable to the entire CdA River system, including the lower CdA River, which does not appear to be appropriate. Third, it is not clear whether their work should be expanded to the "entire South Fork CdA River Basin". How data were merged to come up with entire SFCdA River Basin values is unclear. Forth, the additional presentation of map figures that specifically highlight the areas referred to as the Upper South Fork, Page-Galena, and Pine Creek drainages is requested.

The 2nd paragraph of the section states that a calculated hardness of 30 mg/l is "toward the lower end of the range for the mining-affected portions of the Basin". Revision and clarification is needed here. This is too much of an oversimplification. The statement clearly does not apply to the lower CdA River, Lake CdA, and the upper Spokane River where hardness values tend to be significantly lower. It also does not apply to Pine Creek Drainage. The discussions and tables should be revised to more conservatively present the data and associated statistical packaging.

2.6 Ecological Conceptual Site Model:
2.6.2 Process Models for the Potential Ecological Exposures:
Please expand discussion of CSM Unit 5. Of importance to the EcoRA are the major processes occurring along the river and how those processes influence the river ecology and ecological risks. Such conditions include: 1) The losing reach of the river from Post Falls to near Sullivan Road (approx. river mile (RM) 89). Along this reach there is no groundwater recharge to adjust hardness. The aquatic life is more severely impacted as a result. Hardness should be presented for this and other segments. Ample data exist. This is also a segment of the river where the river includes wider stretches in which greater sediment and minor floodplain deposition has occurred. The segment also contains critical rainbow spawning sites that need to be recognized. Below this reach the river receives recharge from groundwater, which shifts hardness. 2) The confluence of Latah Creek (approx. RM 72) marks a point where a prominent influx of suspended and bedload sediment is added. This tributary causes a dilution of sediment and surface-water metals concentrations. Lead concentrations in sediments decrease markedly below Latah. 3) Further downstream is Long Lake Dam, which forms the largest reservoir on the river and retains sediments having elevated metals, particularly zinc. This needs to be presented. 4) A final, regionally prominent feature is the Spokane Arm of Lake Roosevelt, also containing fine-grained sediments rich in zinc. In summary, a fuller discussion of the conceptual model for the Spokane River is sought.

Figures 2-3 through 2-8:

Greater clarification is needed for describing "background" values. These tables should include statements noting the reference background values do not apply to several areas in the basin and that the data pool is not all inclusive. The data pool is missing, for example, Lake CdA and Spokane area background data.

3.0 ANALYSIS:

3.1 Exposure Characterization:
3.1.1.2 Spatial and Temporal Distribution of Chemical Stressors, page 3-2:
Please add greater explanation of the basis for the values used in Figures 3-3 through 3-18. The temporal and flow-rate relationships of the various stations are key considerations for interpretation (e.g., when were the measurements made for each station).

The limitations, assumptions, and error ranges of the probabilistic approach also need to be fully defined and discussed.

3.2 Ecological Effects Characterization:
3.2.3.1 Literature-Derived and Site-Specific Single-Chemical Toxicity Data:
Please add statements to explicitly note that the hardness of the Spokane River and Lake CdA are considerably lower than the hardnesses used of 30, 50, and 100 mg/L and how the lower hardnesses influence the LC50s and ambient criteria. For Table 3-15 please include an H=20 column.

Tables 3-10 and 3-18:
The distinctions between SR70 and SR75 on the Spokane River at Spokane are unclear. These may actually be the same station since there is only one gauge in that reach of the river. Also, the work done by the USGS should have included Latah Creek as part of the synoptic sampling events, which is not discussed.

4.0 RISK CHARACTERIZATION:

4.1 Risk Characterization:
4.1.3 Fish and Other Aquatic Organisms:
Internal exposure data does exist for fish in the Spokane River. They include fish liver trace element analyses conducted for Ecology by the USGS in 1998-99. Funk (1973 & 75) evaluated Zn in gills and livers of fish. Kadlec (2000) summarizes these studies. These data that document bioconcentration should be evaluated and integrated into the report. Bioassays also have been performed on algae, invertebrates, and fish. These also are summarized in Kadlec (2000). Internal exposure and bioassay data may result in modifications of the weight-of-evidence tables used in Section 4.

4.2 Risk Description:
4.2.3 Fish and Other Aquatic Organisms:
Table 4-25 in first paragraph, page 4-27, which is actually Table I-1: Please expand the HQ evaluation that includes State of Washington benchmarks and then create a comparable weight of

evidence summary (e.g., like Table 4-18 and related tables) that reflects these alternative benchmarks. This could be located in an appendix if deemed appropriate.

5.0 CONCLUSIONS AND ECOLOGICAL PRELIMINARY REMEDIAL GOALS:

5.1 Conclusions:

5.1.9 Data Gaps:

Information on aggregate affects of multiple chemical exposure is not evaluated.

5.2 Ecological Preliminary Remedial Goals:

5.2.1 Soil:

As noted in the General Comments, the proposed MTCA rule revisions include a terrestrial ecological component that would influence the soil PRGs if and when it becomes rule - currently anticipated at the end of year 2000.

5.2.2 Sediment:

5.2.2.2 Fish and other Aquatic Organisms:

As noted previously the recognition that regional CdA River system background concentrations do not apply to the Spokane River is notable and should be summarized in these conclusions. Core data from Long Lake, the Spokane Arm, Lake CdA, and Black Lake should be clearly summarized and used in this document.

The last paragraph of the subsection on page 5-9:
This discussion should be expanded to address what the coring information means in terms of appropriate PRGs for the lower CdA valley, Lake CdA, and the Spokane River.

5.2.3 Surface Water:

See previous comments on the appropriateness of the estimated background values being applied.

5.3 Summary of Ecological Risk Assessment:

Page 5-11, last bullet:
The findings of the USGS work should be expanded in this document. The Lake CdA study documented benthic impacts in the sediments that need to be presented. The USGS chemical flux issues should be further discussed.

Appendix C: Should this also include aquatic species?

Thank you for the opportunity to comment. Please call if you have any questions or if you would like additional information.

Sincerely,

John L. Roland

JLR:mg

Cc: Michelle Wilcox, Ecology
Nigel Blakely, Ecology
Lauri Vigue, WDFW
Bill Bidsrup, DNR

Attachment